

AMENDMENTS TO CLAIMS

1. (Currently Amended) A system for exploring a decision space and making decisions comprising:
 - a seeker for ~~providing~~ producing a plurality of evaluated candidates wherein each of a plurality of candidates is evaluated according to a plurality of evaluation criteria;
 - a filter for ~~selecting a subset of evaluated candidates from said plurality of evaluated candidates, wherein said filter~~ producing a set of filtered candidates from said evaluated candidates by comparing each candidate to other candidates according to at least two evaluation criteria and using ~~uses~~ a form of dominance to exclude from said subset of evaluated candidates each candidate that is inferior to any other candidate; and
 - a viewer for displaying said ~~subset of evaluated~~ filtered candidates in a plurality of linked scatterplots wherein each axis of each scatterplot represents an evaluation criterion of said filtered candidates ~~and enabling narrowing of said subset of evaluated candidates~~.
2. (Currently Amended) The system of claim 1 wherein said seeker ~~provides~~ produces said plurality of evaluated candidates by retrieving a plurality of evaluated candidates from a database.
3. (Currently Amended) The system of claim 1 wherein said seeker produces ~~provides~~ said plurality of evaluated candidates by generating a plurality of evaluated candidates using combinations of components from a device library.
4. (Previously Amended) The system of claim 3 wherein said device library further

comprises encoded components, component behaviors, and composition schemes.

5. (Previously Amended) The system of claim 4 wherein said components are encoded using a functional and compositional modeling language.
6. (Previously Amended) The system of claim 3 wherein said seeker enables composition of a device without reference to a specific environment.
7. (Previously Amended) The system of claim 3 wherein said seeker enables composition of a deployed device.
8. (Currently Amended) The system of claim 1 wherein said seeker produces ~~provides~~ evaluated candidates using a functional and compositional modeling language simulator capable of enabling simulations of behaviors or characteristics of candidates to answer a plurality of questions in order to evaluate said candidates according to said plurality of evaluation criteria.
9. (Canceled)
10. (Previously Amended) The system of claim 1 wherein said seeker uses distributed computation to evaluate said plurality of candidates.
11. (Original) The system of claim 1 wherein said filter is selected from the group consisting of classical dominance filter, strict dominance filter, superstrict dominance filter, selective superstrict dominance filter, discernible difference dominance filter, two-pass toleranced filter, and onionskin filter.
12. (Currently Amended) The system of claim 1 wherein said filter uses a toleranced dominance method to produce ~~select~~ said subset of ~~evaluated~~ filtered candidates.

13. (Original) The system of claim 1 wherein said viewer is adapted to use a multi-attribute display.
14. (Currently Amended) The system of claim 1 wherein ~~said linked scatterplots in~~ said viewer ~~are~~ displays trade-offs among elements of said subset of evaluated filtered candidates and enables narrowing of said subset of filtered candidates.
15. (Canceled)
16. (Currently Amended) The system of claim 1 wherein said plurality of candidates ~~is~~ comprises designs for hybrid electric vehicles.
17. (Currently Amended) The system of claim 1 wherein said plurality of candidates is selected from the group consisting of candidates for a design task, candidates for planning task, candidates for a purchasing task, ~~and~~ candidates for alternative hypotheses, candidates for investments, and candidates for an investment portfolio.
18. (Currently Amended) A system for exploring a decision space and making decisions comprising:
 - a seeker for ~~providing~~ producing a plurality of evaluated candidates ~~composed according to specifications and constraints by generating said plurality of candidates according to templates using combinations of components from a library and wherein each of a plurality of candidates is~~ evaluated according to a plurality of evaluation criteria;
 - a filter for producing a set of filtered candidates from said evaluated candidates by comparing each candidate to other candidates to exclude at least one evaluated candidate ~~selecting a subset of candidates from said plurality of~~

~~candidates~~; and

a viewer for displaying said ~~subset of~~filtered candidates in a plurality of linked scatterplots wherein each axis of each scatterplot represents an evaluation criterion of said filtered candidates~~and exploring said subset of candidates.~~

19. (Previously Amended) The system of claim 18 wherein said viewer enables narrowing of said subset of candidates.
20. (Original) The system of claim 19 wherein said viewer is adapted to use a multi-attribute display.
21. (Canceled)
22. (Canceled)
23. (Canceled)
24. (Canceled)
25. (Currently Amended) The system of ~~claim 24~~ claim 18 wherein said library is a device library further ~~comprises~~ comprising encoded components, component behaviors, and composition schemes.
26. (Previously Amended) The system of claim 25 wherein said components are encoded using a functional and compositional modeling language.
27. (Currently Amended) The system of ~~claim 24~~ claim 15 wherein said seeker enables composition of a device without reference to a specific environment.
28. (Currently Amended) The system of ~~claim 24~~ claim 25 wherein said seeker enables composition of a deployed device.
29. (Currently Amended) The system of claim 18 wherein said seeker ~~provides~~

produces evaluated candidates using a functional and compositional modeling language simulator capable of enabling simulations of behaviors or characteristics of candidates to answer a plurality of questions in order to evaluate said candidates according to said plurality of evaluation criteria.

30. (Canceled)
31. (Previously Amended) The system of claim 18 wherein said seeker uses distributed computation to evaluate said plurality of candidates.
32. (Original) The system of claim 18 wherein said filter is selected from the group consisting of classical dominance filter, strict dominance filter, superstrict dominance filter, selective superstrict dominance filter, discernible difference dominance filter, two-pass toleranced filter, and onionskin filter.
33. (Currently Amended) The system of claim 18 wherein said filter uses a toleranced dominance method to ~~select~~ produce said subset of filtered candidates.
34. (Currently Amended) The system of claim 18 wherein said plurality of candidates ~~is~~ comprises designs for hybrid electric vehicles.
35. (Currently Amended) The system of claim 18 wherein said plurality of candidates is selected from the group consisting of candidates for a design task, candidates for planning task, candidates for a purchasing task, ~~and~~ candidates for alternative hypotheses, candidates for investments, and candidates for an investment portfolio.
36. (Currently Amended) A system for exploring a decision space and making decisions comprising:

a seeker for ~~providing~~ producing a plurality of evaluated candidates wherein each of a plurality of candidates is composed using a functional and compositional modeling language and evaluated according to a plurality of evaluation criteria;

a filter for ~~selecting a subset of candidates from said plurality of candidates~~ producing a set of filtered candidates, wherein said filter compares candidates and uses at least two evaluation criteria ~~uses a form of dominance to exclude evaluated candidates according to said evaluation criteria from said subset of candidates each candidate that is inferior to any other candidate~~; and

a viewer for displaying said ~~subset of~~ filtered candidates in a scatterplot wherein each axis of said scatterplot represents an evaluation criterion of said candidates.

37. (Canceled).

38. (Canceled)

39. (Currently Amended) The system of claim 36 wherein said seeker ~~acquires~~ produces said plurality of evaluated candidates by composing said plurality of candidates using combinations of components from a device library.

40. (Canceled)

41. (Canceled)

42. (Previously Amended) The system of claim 39 wherein said seeker enables composition of a device without reference to a specific environment.

43. (Previously Amended) The system of claim 39 wherein said seeker enables composition of a deployed device.

44. (Canceled)
45. (Currently Amended) The system of claim 36 ~~further comprising a simulator adapted to answer questions about candidates~~wherein said functional and compositional modeling language is capable of enabling simulations of behaviors or characteristics of candidates to answer a plurality of questions in order to evaluate said candidates according to said plurality of evaluation criteria.
46. (Previously Amended) The system of claim 36 wherein said seeker uses distributed computation to evaluate said plurality of candidates.
47. (Original) The system of claim 36 wherein said filter is selected from the group consisting of classical dominance filter, strict dominance filter, superstrict dominance filter, selective superstrict dominance filter, discernible difference dominance filter, two-pass toleranced filter, and onionskin filter.
48. (Original) The system of claim 36 wherein said filter uses a toleranced dominance method to select said subset of candidates.
49. (Original) The system of claim 36 wherein said viewer is adapted to use a multi-attribute display.
50. (Currently Amended) The system of claim 36 wherein said viewer ~~is adapted to display a trade-off scatterplot~~ displays tradeoffs among elements of said subset of filtered candidates and enables narrowing of said subset of filtered candidates.
51. (Canceled)
52. (Currently Amended) The system of claim 36 wherein said plurality of

candidates ~~is~~ comprises designs for hybrid electric vehicles.

53. (Currently Amended) The system of claim 36 wherein said plurality of candidates is selected from the group consisting of candidates for a design task, candidates for planning task, candidates for a purchasing task, ~~and~~ candidates for alternative hypotheses, candidates for investments, and candidates for an investment portfolio.

54. (Currently Amended) A method for exploring a decision space and making decisions comprising:

providing a plurality of evaluated candidates wherein each of a plurality of candidates is composed using a functional and compositional modeling language capable of enabling simulations of behaviors or characteristics of candidates to answer a plurality of questions in order to evaluate said candidates ~~and evaluated~~ according to a plurality of evaluation criteria;

displaying said ~~subset of~~ evaluated candidates in a plurality of linked scatterplots wherein each axis of each scatterplot represents an evaluation criterion of said candidates for comparison and selection of subsets for further examination.

55. (Canceled)

56. (Currently Amended) The ~~system~~ method of claim 54 wherein ~~said seeker acquires~~ providing said plurality of evaluated candidates ~~by~~ comprises generating said plurality of candidates using combinations of components from a device library.

57. (Canceled)

58. (Canceled)
59. (Currently Amended) The method of claim 56 wherein said plurality of candidates is ~~composed~~ generated without reference to a specific environment.
60. (Currently Amended) The method of claim 56 wherein said plurality of candidates is ~~composed~~ generated using a deployed device.
61. (Canceled)
62. (Canceled)
63. (Previously Amended) The method of claim 54 wherein said plurality of candidates is evaluated using distributed computation.
64. (Currently Amended) The method of claim 54 further comprising ~~a filter for selecting~~ producing a set of filtered ~~said subset~~ of candidates from said plurality of evaluated candidates.
65. (Currently Amended) The method of claim 64 wherein ~~said filter is selected~~ the step of producing a set of filtered candidates comprises selecting a filter from the group consisting of classical dominance filter, strict dominance filter, superstrict dominance filter, selective superstrict dominance filter, discernible difference dominance filter, two-pass tolerated filter, and onionskin filter.
66. (Currently Amended) The method of claim 64 wherein the step of producing a set of filtered candidates comprises ~~said filter uses~~ using a tolerated dominance method to select said ~~subset~~ set of filtered candidates.
67. (Currently Amended) The method of claim 54 wherein displaying said ~~subset~~ of evaluated candidates in a plurality of linked scatterplots comprises using a multi-attribute display.

68. (Canceled)
69. (Canceled)
70. (Currently Amended) The method of claim 54 wherein said plurality of candidates ~~is comprises~~ designs for hybrid electric vehicles.
71. (Currently Amended) The method of claim 54 wherein said plurality of candidates is selected from the group consisting of candidates for a design task, candidates for planning task, candidates for a purchasing task, ~~and~~ candidates for alternative hypotheses, candidates for investments, and candidates for investment portfolios.
72. (Currently Amended) A method for exploring a decision space and making decisions including the steps of:
- ~~producing evaluated candidates providing a plurality of candidates with values for various attributes evaluated according to a plurality of evaluation criteria;~~
- ~~selecting one of a plurality of filters to locate a subset of~~producing a set of filtered candidates from said ~~plurality of evaluated~~ candidates, ~~wherein said selected filter by comparing each candidate to other candidates according to at least two evaluation criteria and uses using~~ a form of dominance to exclude from said ~~subset of candidates~~ each candidate that is inferior to any other candidate; and
- displaying said ~~subset of filtered~~ candidates in linked scatterplots wherein each axis of each scatterplot represents an evaluation criterion of said filtered candidates~~for comparison and selection of subsets for further examination.~~

73. (Currently Amended) The method of claim 72 wherein the step of ~~providing a plurality of~~producing evaluated candidates includes the step of retrieving said plurality of candidates from a database.
74. (Currently Amended) The method of claim 72 wherein said plurality of evaluated candidates is acquired using a seeker.
75. (Currently Amended) The method of claim 72 wherein said plurality of evaluated candidates is generated using a device library.
76. (Previously Amended) The method of claim 75 wherein said device library further comprises encoded components, component behaviors and composition schemes.
77. (Currently Amended) The method of ~~claim 72~~ claim 76 further including the step of defining components for said candidates using a functional and compositional modeling language.
78. (Currently Amended) The method of claim 75 wherein said plurality of candidates is ~~composed~~ generated without reference to a specific environment.
79. (Currently Amended) The method of claim 75 wherein said plurality of candidates is ~~composed~~ generated using a deployed device.
80. (Currently Amended) The method of claim 72 wherein the step of ~~providing said plurality of~~producing evaluated candidates includes the step of providing candidates using a functional and compositional modeling language for ~~simulator~~enabling simulations of behavior or characteristics of said candidates.
81. (Currently Amended) The method of claim 80 further including the steps of asking questions about said plurality of candidates and receiving answers to

them from said functional and compositional modeling language ~~simulator~~
simulations.

82. (Currently Amended) The method of claim 72 wherein the step of ~~selecting a filter includes~~ filtering comprises the step of ~~selecting~~ filtering according to a filter from the group consisting of classical dominance filter, strict dominance filter, superstrict dominance filter, selective superstrict dominance filter, discernible difference dominance filter, two-pass filter, and onionskin filter.
83. (Currently Amended) The method of claim 72 wherein the step of ~~selecting a filter~~ filtering comprises the step of ~~selecting~~ filtering according to a filter that uses a tolerated dominance relation.
84. (Currently Amended) The method of claim 72 wherein the step of displaying said ~~subset of~~ filtered candidates includes the step of displaying said candidates in a multi-attribute display.
85. (Currently Amended) The method of claim 72 wherein the step of displaying said ~~subset of~~ filtered candidates includes the step of displaying a trade-off scatterplot of said subset of candidates.
86. (Canceled)
87. (Currently Amended) The method of claim 72 wherein the step of ~~providing a plurality of~~ producing evaluated candidates includes the step of ~~locating~~ producing a plurality of candidate designs for hybrid electric vehicles.
88. (Currently Amended) The method of claim 72 wherein the step of ~~providing a plurality of~~ producing evaluated candidates includes the step of ~~selecting~~ producing a plurality of evaluated candidates from the group consisting of

candidates for a design task, candidates for planning task, candidates for a purchasing task, ~~and candidates for alternative hypotheses,~~ candidates for investments, and candidates for an investment portfolio.

89. (Currently Amended) A method for exploring a decision space and making decisions comprising the steps of:

~~providing~~ producing a plurality of evaluated candidates wherein a plurality of candidates is composed using a functional and compositional modeling language and evaluated according to a plurality of evaluation criteria;

filtering said plurality of evaluated candidates to ~~create a subset of~~ produce a set of filtered candidates wherein said filtering compares each candidate to other candidates according to at least two evaluation criteria ~~uses a form of dominance criterion~~ to exclude from said ~~subset of~~ evaluated candidates each candidate that is inferior to any other candidate;

displaying on a screen linked scatterplots wherein each axis of each scatterplot represents an evaluation criterion of said filtered candidates and that show a distribution of candidates along each ~~criteria~~ evaluation criterion for a decision problem.

90. (Currently Amended) The method of claim 89 further comprising the step of ~~determining which candidates in any one of the criteria have been selected~~ selecting candidates using an interactive graphical user interface.

91. (Currently Amended) The method of claim 89 further comprising the step of performing intersections of sets of selected candidates ~~different selections along different criteria.~~